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ABSTRACT

In the first of this presentation's two parts, an attempt is made to clarify the meaning of constructivist education, an approach based on a theory which explains learning as a process of construction from within the individual, rather than one of internalization or absorption from the environment. In the second part, a personal view of why constructivist education is a likely direction for education in the 21st century is offered. Some of the assumptions surrounding the concept of constructivist education include the notions that children naturally construct knowledge by putting things into relationships, and that their knowledge is constructed as an interelated whole, is not compartmentalized into subject matters, and advances only within the constraints of developmental levels. The aim of constructivist education is personal autonomy, a state defined as being governed by oneself and including, ultimately, the ability to think logically at the formal operational level. Autonomy as the aim of education implies the need to rethink everything done in the name of education. Constructivist teaching, the most difficult kind ever invented, requires educators to change their entire way of thinking about themselves as well as their teaching methods. Although there is a growing constituency of teachers advocating autonomy as the aim of education, it is likely that two or more generations of teachers must retire before a change to constructivist education becomes possible. (RH)

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CONSTRUCTIVIST EDUCATION: A DIRECTION FOR THE TWENTY-FIRST CENTURY

Constance Kamii

A lecture given on January 14, 1982
in celebration of the tenth anniversary of
Circle Children's Center
University of Illinois at Chicago Circle

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I am very honored to have been asked by Patsy Chronis to give this lecture in celebration of the tenth anniversary of Circle Children's Center.* Maureen Ellis was the first teacher when the Center opened in 1972, and I joined her soon afterwards in her efforts to provide not only quality day care for young children but also a good educational program. Maureen quickly became a constructivist teacher, and when Patsy became the Director, she began to provide the solid leadership that resulted in the kind of school we are proud to have today. My close contact with the Center ended about three years ago, as my research moved on to the first grade. But Patsy and Maureen continue to stand staunchly for constructivist education, and I am pleased to maintain my relationship with the Center as a consultant.

I would like to divide my presentation into two parts. First, I would like to clarify what I mean by constructivist education. In the second part, I would like to discuss why I think constructivist education is a direction for the twenty-first century.

Constructivist Education

Constructivist education is based on a theory that explains learning as a process of construction from within the individual, rather than one of internalization or absorption from the environment. For centuries, educators have believed that if we want children to know something, all we have to do is provide instruction. If children did not learn, educators blamed the method or teacher and looked for more effective ways of getting children to internalize the material. The general practice today is still this approach of trying to stuff knowledge into children's heads.

Jean Piaget proved, however, that children do not acquire knowledge directly by internalizing it from the environment. With more than 60 years of scientific research, he proved that children construct knowledge from the inside, through interaction with the environment, by going through one level after another of being "wrong" from an adult's point of view. The most obvious example of constructivism is children's learning to talk. French children learn French, and American children learn English. But they learn to talk by constructing grammatical forms that they have never heard, such as "Daddy chair" and "Sit Adam chair." Later, they go on to construct higher-level errors, such as "I brang my lunch" and "My foots hurt." If we try to correct them, they often comply by saying "my feets" or "my feetses." Learning has a coherence of its own at each level, and children construct knowledge in ways that have escaped adult notice for centuries.

Examples of constructivism are so numerous in so many of Piaget's books that it is hard to understand why educators still believe knowledge to be acquired by internalization from the environment. Here is an example of a 7-year-old's construction of astronomy. It is taken from The Child's Conception of the World, a book by Piaget that was published way back in 1926, well over half a century ago.

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> You've seen the moon, haven't you?--Yes.--What does it do?--It follows us.--Does it follow us really and truly?--Yes.--
>
> ...Why does it follow us?--To show us the road.--Does it know the road?--Yes.--Does it know the Geneva roads?--Yes.--...And the roads in France?--No.--Then what about the people in France? What does the moon do?--It follows them.--...Is it the same moon as here?--No, another one. (p. 217)

Three points can be made about the preceding examples. The first is that children are not passive vessels that stay empty until knowledge is poured into them. They are busy constructing their own knowledge, and learn their native tongue on their own, without any formal instruction. Anybody who has studied a foreign language can appreciate what a feat this is.

The second point that can be made is that children construct knowledge by putting things into relationships. When they say "foots," for example, they do this by categorizing words and constructing the rule of adding an "s" sound to certain words under certain circumstances. When they think the moon follows them, they do this because they put their own movement into relationship with the moon's apparent movement, with reference to a stationary object, such as a tree. Most of us have made similar observations and moved to the right and left several times before concluding that the moon indeed seemed to move when we moved. When children think that the moon knows the road, they have likewise constructed this knowledge by putting things into relationship. Everybody who is older than they are usually knows more than they do. They, therefore, think that a big, moving creature like the moon must also know a great deal. Since children have seen moons of various shapes and sizes, it is not surprising either that they think there are many moons.

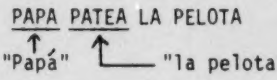
The third point I would like to make about the preceding examples is that knowledge is constructed as an interrelated whole, like the development of an embryo, rather than as a collection of bits added from the outside. In the example about the moon, we find elements of astronomy, geography, biology, and psychology. The idea that the moon has knowledge and follows us belongs to biology and psychology, as well as to astronomy. Knowledge is constructed by modification of all these interrelated ideas, and not by the addition of new bits neatly packaged into separate subjects.

I would like to give another example of constructivism, this time with respect to arithmetic. When my niece was about six years old, she counted several times every day the Christmas presents she and her brother had received. One day, she said, "I had only six yesterday, but I have eight today because Grandma gave me two today." She also announced that she and her brother had the same number of presents. She then noticed that the two she received from her grandmother came in the same wrapping paper, and that the six others from different families came in six different wraps. The next statement that came out of her mouth was "How come Santa Claus uses the same wrapping paper as we do?"

Note that children construct addition on their own, too, without any instruction. Furthermore, the natural construction of knowledge is not compartmentalized into subject matters. Mentally alert children go beyond 6 + 2 and even beyond the knowledge about Santa Claus that adults want them to have.

The next example of constructivism comes from Emilia Ferreiro's research on reading (Ferriero, 1978). Emilia was a colleague of mine in Geneva until she returned to her native land, Argentina. In her research, she interviewed four-to-six year old children who had not yet had instruction in school in reading. She told them, for example, that she was going to write "Papá patea la pelota" ("Daddy kicks the ball") and wrote "PAPA PATEA LA PELOTA" in front of the child. She then asked each child if he thought it said "papá" somewhere in what she had written. The children at the lowest of the six developmental levels she found pointed to the first word, "PAPA," in response. She then asked if "patea" ("kicks") was written somewhere. The children in this group answered "No...It doesn't say 'patea' anywhere." She then asked if "la pelota" was written somewhere, and the children in this group pointed to the second word, "PATEA". In other words, according to these children, the entire sentence said "Papá patea la pelota," but only the nouns were written, that is, only the objects, Daddy and the ball, were represented explicitly in the text.

Ferreiro went on to ask what the rest of the text said if



Some children replied, "the football field," and others said "the goal" or "Mummy." For these children, in other words, a written sentence was like a picture. When young children draw a house, they often draw other objects in the background, such as flowers and the sun. When they think of Daddy kicking a ball, they likewise think of the football field, the goal, or Mummy watching Daddy. In a picture, children represent only objects. Actions are too fleeting for them to represent explicitly.

After finding six developmental levels among children who had not yet received any instruction in reading, Ferreiro stayed away while the children were taught reading in the first grade. At the end of the year, she went back to find out if there was a relationship between the six developmental levels she had found and the result of the instruction. She indeed found a clear relationship (personal communication). The children at higher initial levels learned to read, and those who were at low initial levels did not. Children do not internalize directly what is taught to them. They can construct new knowledge only if they are already at a certain developmental level. Imagine being taught to read verbs like "kick," "lick," and "tick" when you don't think verbs are written on paper. At a more advanced level found by Ferreio, children thought that verbs were written but not as separate units. For these children, "Daddy" was one unit, and "kickstheball" was another. Being told to say "kicks," "the," and "ball" as three separate units puts the child in conflict with what he honestly thinks. Constructivist education builds on children's natural construction of knowledge, rather than imposing new and foreign ideas from the outside.

The best way to describe constructivist education is in contrast with traditional education. Traditional education works like an assembly line in which 20 to 30 bottles are moved from one station to the next, getting a small amount of liquid poured into them at each successive spot. In the first grade, all the bottles are filled up to one-twelfth of their capacity. I did not know how to draw 30 bottles; so I drew only the three shown in Figure 1. These are first graders filled to one-twelfth of their capacity and ready to be sent to the second grade.

Figure 1

Constructivism, by contrast, is a biological view of learning. The fingers of an embryo grow out of the hand by differentiation from it. The leaves of a tree likewise grow out of the plant by differentiation from it. We can change the factors in the environment such as the composition of the soil, the temperature, and the light in which the plant grows, but there is nothing we can do directly to the plant to make a leaf come out of it. Leaves can be grown only by the plant, from within. Traditional education is like trying to grow trees by pasting leaves from the outside. No wonder the leaves get unpasted as soon as the exam is over!

Traditional education assumes that children must be taught everything if they are to know anything worth knowing. Constructivist education is not the diametric opposite that believes children must be left entirely alone to construct their own knowledge. In constructivist education, the teacher gives instruction but believes in the follow interactionist principles:

1. Children learn quickly when they are personally interested and mentally active.

2. The long-range goal of education must be autonomy, and not the ability to recite "right" answers.

3. Teachers must reduce their power and encourage children to exchange points of view honestly to foster the development of autonomy in children.

Figure 2 is an example from Geneva of constructivist education. The six-year-olds had played with pieces of transparent plastic tubing and marbles. They had made the discovery that if there are two marbles already in the tube, and a third marble is dropped into it, only the last one takes off, and the one in the middle does not move at all. When the marble that took off comes back down, it is again only the last one that takes off. The children varied the number of marbles inside the tube and put three,

Besife tosses the blue marble in.
The one in the middle does not move.
The last one does.
It comes back down and then
the blue one goes toward Besife.

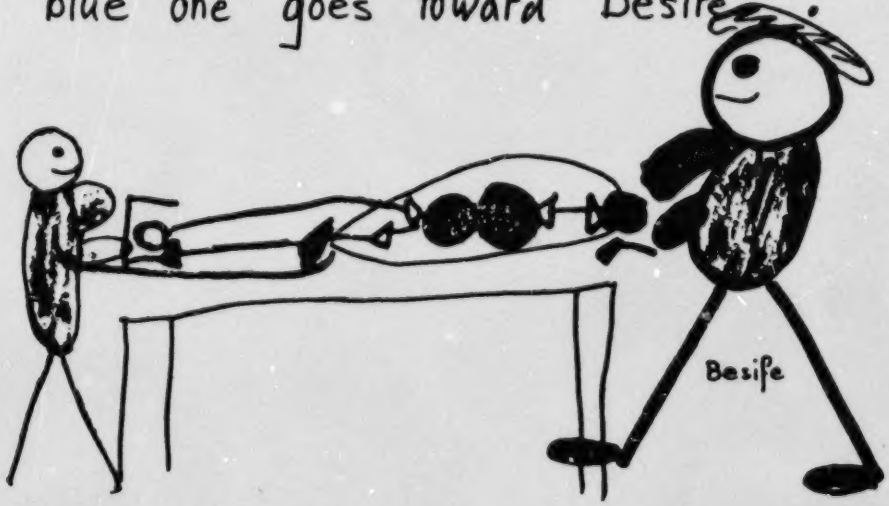


Figure 2

four, or five of them in. They found our that no matter how many marbles are initially inside, only the last onetook off if one marble came down to hit the entire row. They then varied the number they dropped and found out that if they dropped two, the last two of the row took off, and if they dropped three, the last three took off. Figure 2 is what a six-year-old drew, with lots of arrows that made sense to him, and I changed into English the text that he dictated to the teacher.

This activity cuts across science, arithmetic, reading, and art, and this unfragmented approach is one of the characteristics of constructivist education. If children learn by actively constructing relationships, classrooms must be set up to encourage this constructive process. Children learn to read and write best when <u>they</u> want to say something that is important <u>to them</u>.

My current research on first-grade arithmetic is another example of setting up the classroom to encourage the constructive process in children's heads. The research is being done in the classroom of Georgia DeClark, a graduate of our Master's program in Early Childhood Education. (I asked her to stand up.) We started with two ideas rooted in Piaget's theory. The first one was that if children know what "three" is and what "two" is, they can construct for themselves the sum of three and two, without any instruction. The second idea was that if children repeat the addition of three and two often enough in games, they cannot help remembering the result. In more than six years of research at Circle Children's Center, I had seen many kindergarten children memorize sums with the greatest of ease while playing card games and dice games. By the way, I would like to take this opportunity to ask the current and former teachers of Circle Children's Center who are here to stand up. I won't go through their names but would like to acknowledge their professionalism in practicing constructivist teaching, their willingness to study a hard theory, and the courage of their conviction. Based on my experience at Circle Children's Center, I asked Georgia to throw out of her arithmetic program all instruction and all worksheets, and to use instead only two kinds of activities--games and situations in daily living such as the counting of votes to make a decision.

I am against worksheets because children learn the wrong things from them and very little that is positive. For example, if a child already knows the sum of three and two, he does not learn anything new by writing the answer. If he does not know it, having to write the answer after counting on fingers prevents him from remembering the numbers. When a first grader thinks about how to write "5," he cannot think simultaneously about "three" and "two." Furthermore, once he writes the answers, he turns the worksheet over to the teacher, and the responsibility of checking the answers is handed over to the teacher. When the corrections come the next day, children cannot remember what they did and usually don't even care. They are thus ready to make the same errors all over again. Through worksheets, children also learn that the truth can come only from the teacher's head.

Group games are much better than worksheets because if, for example, a child says that $3 + 2 = 6$, he is likely to be corrected immediately by the other players. If you are not convinced that children are mentally more active in games than while working on worksheets, I suggest that you

observe them in both situations. In a dice game, children do not only their own addition but also everybody else's work as well.

The children in Georgia's class last year thus did not have any instruction in first grade arithmetic. At the end of the year, however, they came out slightly better than the group who had been taught in the traditional way, through worksheets and flashcards. We learned, furthermore, that children do not memorize sums in the order expected by adult common sense. In the Instructional Program of the Chicago Public Schools, for example, children are expected to know sums through ten in the first grade, and sums through eighteen in the second grade (Board of Education of the City of Chicago, 1981). This sequence appears reasonable to adults, but children do not construct knowledge in such a reasonable way. Any number plus 1 or 2 is easier than many small sums through 10. For example, 1 + 15 and 10 + 2 are taught in the second grade, but these are easier to remember than 3 + 5 that is expected in the first grade. Certain "doubles" such as 10 + 10 and 6 + 6 are likewise taught in the second grade, but these are easier to remember than 3 + 5 that is expected in the first grade.

I spoke so far about reading, writing, arithmetic, and science as if constructivist education were just another way of teaching the same thing that traditional education has taught. This impression is misleading. Constructivist education has goals that are different from traditional goals. The aim of constructivist education is autonomy, which I envision as shown in Figure 3 in relation to the objectives of traditional schools. Autonomy means being governed by oneself. It is the opposite of heteronomy, which means being governed by someone else. An extreme example of intellectual autonomy is found in the work of Copernicus, or the inventor of any other revolutionary theory in the history of science. Copernicus published the heliocentric theory in 1543, when everybody else believed that the sun revolved around the earth. He was laughed off the stage by his fellow scientists, but was autonomous enough to remain convinced of his own idea. An intellectually heteronomous person, by contrast, lacks the initiative to question what he is told, including illogical conclusions, slogans, and propaganda.

A more commonplace example of intellectual autonomy is my niece, whom I have already mentioned. She had been taught that Santa Claus brought her presents, but did not accept uncritically what she had been told. Her asking "How come Santa Claus uses the same wrapping paper as we do?" is an example of intellectual autonomy. After her mother gave her an "explanation," she went on to ask one more question: "How come Santa Claus has the same handwriting as Daddy?"

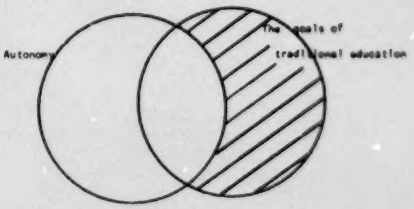


Figure 3

Worksheets encourage heteronomy, that is, obedience, submissiveness, dependency, and, in short, being governed by somebody else. It is the teacher who decides which worksheets are to be completed and when, and the teacher decides which answers are correct. When games are used, on the other hand, the teacher is neither omnipotent or omniscient. In games, it is the children who decide which game to play and with whom. It is the children who check each other's answers and decide what to do if someone cheats. Games thus encourage children to become more autonomous socially, morally, and intellectually.

The shaded part of the circle to the right (labeled "The goals of traditional education" in Figure 3) stands for things we memorized in school just to pass one examination after another. All of us who succeeded in school achieved this success by memorizing an enormous number of "right" answers without understanding them or caring about them. All of us have experienced the relief of being free to forget the things we memorized only to pass a test. We made these efforts mostly because we were good, obedient, heteronomous conformists.

The result of this kind of education is what McKinnon and Renner (1971) and Schwebel (1975) found in their research on college freshmen's ability to think logically at the formal operational level. These college students were the "cream of the crop" in elementary and high school who were successful enough to enter the university. The percentage of college freshmen found by McKinnon and Renner to be capable of solid logical thinking at the formal level was 25. The percent found by Schwebel at Rutgers University was only 20.

Ability to think logically at the formal level belongs to the circle labeled "Autonomy." More precisely, it belongs to the part of the circle that does not overlap with the other circle, since so few college freshmen seem to have formal operations after being successful in secondary school. After presenting their findings, McKinnon and Renner asked what kind of education these university students received in high school. They concluded that high-school students are not taught to think logically, and that if high-school teachers do not emphasize logical thinking, we must ask who trained these teachers. Their answer was: Universities did. In other words, schools underemphasize thinking from beginning to end. If students cannot think logically at the formal-operational level, they can certainly not think critically or autonomously.

The intersection between the two circles stands for things we learned in school that were useful to our development of autonomy. The ability to read and write, to do arithmetic, to read maps and charts, and to situate events in history are examples of what we learned in school that are useful for our adaptation to the environment. If autonomy is the aim of education, attempts must be made to increase the area of overlap between the two circles.

Autonomy as the aim of education implies the need to rethink everything we do in the name of education. I do not have anything against "good" behavior, "right" answers, or the three R's. I am, in fact, all for them. But there is an enormous difference between a correct answer autonomously produced with personal conviction and one produced heteronomously by obedience. There is likewise an enormous difference between "good" behavior autonomously chosen and "good" behavior practiced through blind conformity.

I am sorry not to have enough time to discuss the moral aspect of autonomy, which is a large part of the circle to the left. For those who are interested, I wrote a paper you can have entitled "Autonomy As the Aim of Education" (in Kamii, 1982). I would simply like to point out that the Watergate coverup affair was produced by obedient adults who were governed by others through rewards and punishments. Reward and punishment result in three possible outcomes: calculation of risks and costs, blind conformity, and sometimes revolt. Educators must try to raise children who can judge autonomously what is right or wrong, independently of what leads to a reward or to punishment.

I would like to give an example of a sixth grade teacher in Geneva who taught grammar in a way that fostered children's intellectual autonomy. The class was learning to diagram sentences, and the group was divided into six subgroups of four or five pupils each. When I arrived after lunch, the teacher put a rather tricky sentence on the board and gave the groups 20 minutes to diagram it. When the time was up, a representative of each group went to the board and put a diagram on it. Two of the six were immediately erased, as they duplicated two other groups'. Individual students then offered well-reasoned arguments in favor of one diagram, or to show that one was inadequate. The author of the version under attack would then defend it vigorously. The arguments thus continued with intensity until it was time for recess. By that time, everybody had agreed that two of the four versions could not be defended and had to be erased.

When the children returned from recess, the teacher asked if the class wanted the answer. Some said "Yes," but others answered, "No, because you'll give us the wrong answer just to see if you can trick us." The teacher admitted that he indeed intended to do that. The arguments and counterarguments continued, and the class finally agreed on the superiority of one diagram.

This class spent an entire afternoon on one sentence. But I was left with the impression that the children thought so hard about each well-articulated idea that they were thoroughly convinced in the end of the superiority of the final version. Many pupils offered wrong ideas along the way, but they were encouraged to defend their opinion until <u>they</u> were convinced that they were wrong. Children learn by modifying old ideas, rather than simply by accumulating new bits. A debate about the superiority of one diagram or another is good because it encourages children to think critically by putting different opinions into relationship, and modifying old ideas when <u>they</u> are convinced that a new one is better.

I hope the similarity is clear between this example about sixth grade grammar and the one I gave earlier about games in first grade arithmetic. An important principle of teaching in constructivist education is that children be encouraged to exchange points of view. If one child thinks that $3 + 2 = 6$, and another child has a different idea, it is much better for both of them to exchange points of view than to have the wrong answer corrected by an omniscient teacher. This principle of exchanging honest opinions can be used in any subject at any age level, including the university. Children become much more interested and responsible when they are asked to defend their own personal, honest ideas than when they are made to recite "right" answers.

Constructivist Education As a Direction for the Twenty-First Century

Why am I convinced that constructivist education is a direction for the twenty-first century? Earlier, I noted that when Copernicus published the heliocentric theory in 1543, he was jeered by his fellow scientists. But today, only 400 years later, no one doubts the truth of the heliocentric theory. It is natural for people to resist new theories (Kuhn, 1962), but the evidence is too consistent from too many cross-cultural studies to cast any doubt on constructivism. I have seen behaviorists, associationists, and empiricists change over to Piaget's theory as I did, but I have never heard of a Piagetian who later became a behaviorist, associationist, or empiricist.

I think, however, that constructivist education is a direction for the twenty-first century, rather than for next year or even the coming five years. Change will take time partly because constructivist teaching is the hardest kind of teaching ever invented. It is much easier and less threatening to follow a teacher's manual, go through reading groups day after day, give and correct worksheets, and make routine lesson plans for the entire week. Constructivist education requires that the teacher understand how the child is thinking and feeling, and raise an occasional question or make a tactful suggestion. The drawing shown in Figure 2 was made at the teacher's suggestion. The idea of writing the text was also initiated by the teacher. But if the child had refused these suggestions, the teacher would have respected the child's wishes. A child who feels respected today is more likely to accept a suggestion tomorrow than one who feels he was forced to submit to adult power.

The most difficult part of constructivist teaching is that it requires change, not only of a teacher's method of teaching, but also of his entire way of thinking about himself. It is extremely hard for a teacher to stop being the all-powerful, all-knowing center of the classroom. It is likewise extremely hard for an administrator to stop being a factory manager who supervises the mere filling of bottles. I think, in fact, that for the great majority of teachers and administrators already on the job it is impossible to change because it is too threatening to give up our adult power.

When a teacher finally takes a heroic constructivist step, he or she usually comes in direct conflict with a principal. For example, a teacher in the Chicago Public Schools who is in this audience decided to use the discussion approach to teach composition. She got the group to suggest how each child's composition might be improved. She saw that this method dramatically improved the children's interest and quality of thinking. However, her Principal commanded her to correct every single error on every single paper. Principals and others in power have already reached the top of the ladder and are far from the "nitty-gritty" of teaching real children. There is, therefore, little, if any, incentive for them to study a new and difficult theory and change their entire way of viewing their existence.

For a teacher who has gone through our Master's Program in Early Childhood Education, having to continue teaching in ways that are now against their conscience is intolerable. Some fight the system for a few years and end up leaving it. Some of the teachers who have taught at Circle Children's Center had also taught in public schools. They came to Circle Children's Center after concluding that teaching in accord with their conscience was more important to them than the higher salaries they were receiving in public schools. Many other teachers all over the country have likewise been leaving public schools after learning about child development in graduate schools.

I am afraid the smoothest way to change over to constructivist education is to wait for the old generation to retire and make room for the younger generation. I further think it will take two or more generations for education to change.

But can parents wait for two or more generations? For years, parents at Circle Children's Center have asked the staff to recommend schools for their six-year-olds. Unfortunately, the response has been that we don't know of any school, either public or private, that is based on constructivism.

The most recent case is that of Mrs. Carrie Palmer. (I asked her to stand up.) Her daughter attended Circle Children's Center happily for three years and eagerly went to first grade in a magnet school. After the first week, however, her child began to cry and to say that she did not want to go to school any more. In her new school, she was made to read when she was totally uninterested in reading. While the teacher went through her reading groups, the children spent literally 80% of their time filling out worksheets. Furthermore, they were required to work in silence, and silence reigned through most of the day. If you believe in constructivism, you immediately recognize this classroom as being harmful to children's social, moral, and intellectual development.

To make a long story short, Mrs. Palmer ended up taking her child out of the public schools on October 8, only one month after the beginning of the school year, and enrolling her in a private school, where the teacher is kind but worksheets are still the main staple of intellectual nourishment. The injustice is that this kind of harm is being done to children with tax money and compulsory attendance laws, about which parents have absolutely no choice. There is no school in the entire public school system now whose aim is the development of autonomy in children.

The best solution to this problem, I think, is for public schools to provide more alternatives. Autonomy as the aim of education is preferred by some parents, some teachers, and some administrators. The great majority, however, prefer the traditional, tried-and-true approach. The traditionalists, too, have a right to the kind of school they prefer. The injustice now is that, no matter what a magnet school has to offer, it still does not offer autonomy as the broad aim within which each content is taught. Whether we teach arithmetic, science, poetry, or history, we teach it very differently when our broader aim is the development of autonomy.

Young children are vulnerable and completely at our mercy. The three-, four-, five, and six-year-olds at Circle Children's Center have their futures ahead of them. The ten years of compulsory public education they will have can make an enormous difference in the kind of human being they will turn out to be. It troubles me very much to think that they may have the kind of coercive, conformist education that most of us had.

It will not be easy to make constructivist education a reality. But in my 14 years of curriculum research with teachers, I have been amazed by how inventive, resourceful, and knowledgeable teachers can become when they have Piaget's theory as a conceptual tool. I have also been deeply touched by teachers' professional conscience. They get punished for following their conscience, but they have a strong desire to do what is best for children.

There is thus a growing constituency of teachers who advocate autonomy as the aim of education. There is also a growing constituency of administrators, especially in California, who are working hard for constructivist schools. I have approached some administrators of the Chicago Public Schools about the possibility of setting up a magnet school where autonomy would be its aim. The initial reactions I have received so far have been positive, and I intend to pursue these dialogues. A third constituency is parents like Mrs. Palmer who know how damaging it is for children to be pressured and forced silently into a mold. These parents, teachers, and administrators are now scattered all over the City, and I would like to encourage them to get together to work for an alternative school.

When Circle Children's Center was born only ten years ago, we did not dream that it would become the kind of school that attracts visitors from abroad. I have given many lectures, both in this country and abroad, on autonomy as the aim of education. The reaction everywhere has been enthusiastic and sober.

There are, in fact, many teachers in this audience who would transfer tomorrow to a constructivist school if such a school were created. Many parents would also work hard, just like the parents who supported Circle Children's Center all the way through its infancy and vulnerable years. The task ahead will be arduous, but many of us are willing and ready to work hard to make schools a better place for the next generation.

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